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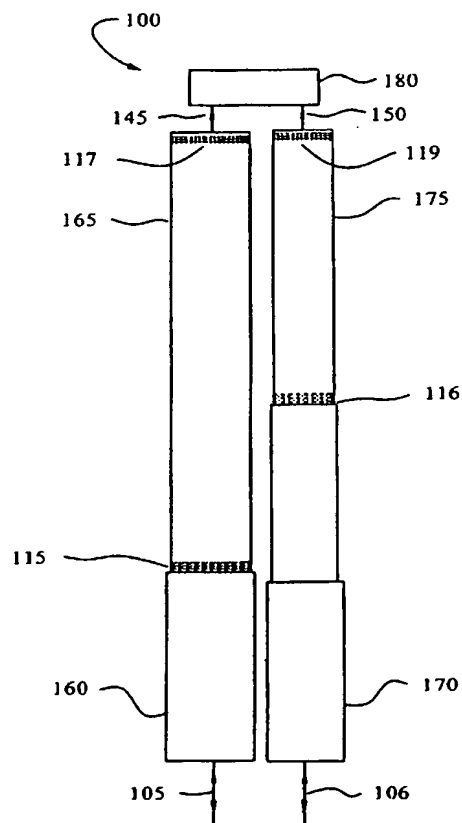
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(54) Title: **WIRED AND WIRELESS METHODS FOR CLIENT AND SERVER SIDE AUTHENTICATION**

(57) Abstract: An integrated cryopump and 2 stage pulse tube refrigeration system (100) comprising a cryopump, a compressor for a pulse tube refrigerator, a pulse tube refrigerator located within the vacuum chamber of the cryopump where the hot ends of the pulse tubes (165,175) are connected to each other through a buffer volume (180), are integral to the cryopump vacuum chamber housing, and a buffer volume (180) is connected to the hot ends (117,119) of the pulse tubes (165,175) through flow restrictors (145,150).

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